AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
	1		3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0007	28 JULY 2003		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
US ARMY ENGINEER DISTRICT, FORT WORTH ATTN: CESWF-CT (RM 2A19) PO BOX 17300 FORT WORTH, TX 76102-0300			

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*	(X)	9A. AMENDMENT OF SOLICIATION NO.
	☒	DACA63-03-B-0004
		9B. DATED *(SEE ITEM 11)* 16 JUNE 2003
	☐	10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED *(SEE ITEM 11)*
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a)By completing items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (*Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

The Solicitation for ACCESS CONTROL BUILDING (ACP's), FORT HOOD, TEXAS, is amended as follows:

See Continuation Sheets.

NOTE: Bid opening date and time remain 6 August 2003 at 2 pm local time, as previously announced.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA *(Signature of Contracting Officer)*	16C. DATE SIGNED

Item 14. Continued.

CHANGES TO BIDDING SCHEDULE

1. Replace the Bidding Schedule, pages 00010-3 through 00010-5, with the accompanying new Bidding Schedule, bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-03-B-0004."

CHANGES TO THE SPECIFICATIONS

2. New Sections - Add the following accompanying new sections, each bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-03-B-0004:"

02360	SOIL TREATMENT FOR SUBTERRANEAN TERMITE CONTROL
02713A	BITUMINOUS BASE COURSE

3. Replacement Sections - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-03-B-0004:"

08581	BULLET RESISTANT AND BLAST RESISTANT ALUMINUM WINDOWS
08810A	GLASS AND GLAZING
12320A	CABINETS AND COUNTERTOPS
16410A	AUTOMATIC TRANSFER SWITCH

CHANGES TO THE DRAWINGS

4. Replacement Drawings.- Replace the drawings listed below with the attached new drawings of the same number, bearing the notation "AM #0007":

C0-01	Civil Notes, Sheet 1 of 96
C1-02	Demolition Plan, Main Gate, Hood Road. Sheet 2 of 96
C1-03	Site Plan, Main Gate, Hood Road, Sheet 3 of 96
C1-05	Site Plan, Visitor Control Center, Sheet 5 of 96
C1-07	Demolition and Site Plans, Gate 03, Clear Creek Road, Sheet 7 of 96
C1-08	Demolition and Site Plans, Gate 04, Warrior Way, Sheet 8 of 96
C1-09	Demolition and Site Plans, Gate 05, East Range Road, Sheet 9 of 96
C1-10	Demolition Plan, Gate 06, Santa Fe Avenue, Sheet 10 of 96
C1-11	Demolition and Site Plans, Gate 07, West Range Road, Sheet 11 of 96
C1-12	Demolition and Site Plans, Gate 08, Tank Destroyer Blvd. (West) Sheet 8 of 96
C1-13	Demolition and Site Plans, Gate 09, Clarke Road (North), Sheet 13 of 96
C1-14	Demolition and Site Plans, ACP Gate 9A, Clarke Road (South), Sheet 14 of 96
C1-17	Demolition and Site Plans, Gate 12, Venable Village/Hwy 190, Sheet 17 of 96
C1-20	Site Plan, Gate 15, Mowhawk Road, Sheet 20 of 96
C4-21	Enlarged Site Plan, Gate 9A, Clarke Road (South) Sheet 21 of 96
C5-22	Details, Miscellaneous Concrete, Sheet 22 of 96
C1-24	Demolition and Site Plans, Gate 22, 10th Street/Warrior Way, Sheet 24 of 96
C1-25	Demolition and Site Plans, Gate 26, Venable Village/Hwy 190, Sheet 25 of 96
C1-27	Demolition and Site Plans, Airport Gate, Robert Gray Airport, Sheet 27 of 96
C4-28	Enlarged Site Layout, Main Gate, Sheet 28 of 96

C4-29	Enlarged Site Layout, Primary Gates, Sheet 29 of 96
C4-30	Enlarged Site Layout, Secondary Gates, Sheet 30 of 96
C4-31	Enlarged Site Layout, Limited Use Gates, Sheet 31 of 96
C4-32	Enlarged Site Layout, Gate 9, Clarke Road (North), Sheet 32 of 96
C4-33	Enlarged Site Layout, Visitor Control Center, Sheet 33 of 96
C5-39	Details, Pavement and Curb, Sheet 1 of 2, Sheet 39 of 96
C5-40	Details, Pavement and Curb, Sheet 2 of 2, Sheet 40 of 96
C5-41	Details, Traffic and Security Control Devices, Sheet 41 of 96
C5-42	Details, Stormwater Piping and Details, Sheet 1 of 2, Sheet 42 of 96
C1-59	Pavement Markings, Gates 3 and 4, Sheet 59 of 96
C1-83	Storm Water Control Plan, Gate 4, Warrior Way, Sheet 83 of 96
M1-07	Sanitary Sewer Service Plan and Profile, Gates 1, 2, 3, and 4, Sheet 7 of 45
M1-17	Water Service Plan, Gates 4, 5, and 22, Sheet 17 of 45
E0-01	Electrical Notes And Legend, Sheet 1 of 96
E1-17	Gates 4 and 6, Lighting and Conduit Site Plan, Sheet 17 of 96
E1-63	Gates 4, 5, & 22, Fiber Optic & Telephone Cable Plan, Sheet 1 of 6, Sheet 63 of 96
E1-65	Gates 4, 5, & 22, Fiber Optic & Telephone Cable Plan, Sheet 3 of 6, Sheet 65 of 96
E1-79	Gates 14, 15, & Airport, Fiber Optic & Telephone Cable Plan, Sheet 1 of 4, Sheet 79 of 96
E1-80	Gates 14, 15, & Airport, Fiber Optic & Telephone Cable Plan, Sheet 2 of 4, Sheet 80 of 96
A0-01	Architectural Notes and Legend, Sheet 1 of 33
A3-04	Visitor Control Center, Building Cross Sections, Sheet 4 of 33
A3-05	Visitor Control Center, Wall Sections and Details, Sheet 5 of 33
A3-06	Visitor Control Center, Window Sections and Details, Sheet 6 of 33
A6-18	Gatehouse, Door Schedule and Details, Sheet 18 of 33
A6-19	Gatehouse, Window Details, Sheet 19 of 33
A1-29	Truck Inspection Facility, Floor Plan, Sheet 29 of 33
A5-31	Truck Inspection Facility, Details, Sheet 1 of 2, Sheet 31 of 33
A5-32	Truck Inspection Facility, Details, Sheet 2 of 2, Sheet 32 of 33
A5-33	Miscellaneous Details, Sheet 33 of 33

END OF AMENDMENT

Access Control Building (ACP's) (Project)
Fort Hood, Texas (Location)

Solicitation No. DACA63-03-B-0004

BIDDING SCHEDULE
(to be attached to SF 1442)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount
0001	Main Access Control Point; complete (Including all utilities to the 5-Ft line exclusive of all work listed separately)	Job	Sum	***	$_____
0002	Visitor Control Center (Hood Road) complete (Including all utilities to the 5-Ft line exclusive of all work listed separately)	Job	Sum	***	$_____
0003	Primary Access Control Points, complete (Including all utilities to the 5-Ft line exclusive of all work listed separately)	Job	Sum	***	$_____
0004	Secondary Access Control Points, complete (Including all utilities to the 5-Ft line exclusive of all work listed separately)	Job	Sum	***	$_____
0005	Housing/Limited Use Access Control Points, complete (Including all utilities to the 5-Ft line exclusive of all work listed separately)	Job	Sum	***	$_____
0006	**Truck Inspection Office Buildings (the small offices at Gates 9 & 9A), complete (Including all utilities to the 5-Ft line exclusive of all work listed separately) (Am#7)**	**Job**	**Sum**	*******	**$**_____
0007	**Truck Inspection Facility (the drive-thru inspection facilities at Gates 9 & 9A), complete (Including all utilities to the 5-Ft line exclusive of all work listed separately) (Am#7)**	**Job**	**Sum**	*******	**$**_____
0008	**All Canopies, (including foundation, supports and roofs exclusive of all work listed separately) (Am#6)**	**Job**	**Sum**	*******	**$**_____
0009	All Exterior Work outside the buildings' 5-Ft line (Including all utilities, earthwork, paving sidewalk, curb and gutter, demolition, turfing, and all other work not listed separately)	Job	Sum	***	$_____
0010	Final Record Drawings	Job	Sum	***	$ 60,000.00

Access Control Building (ACP's) (Project)
Fort Hood, Texas (Location)

Solicitation No. DACA63-03-B-0004

BIDDING SCHEDULE
(to be attached to SF 1442)

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Estimated Amount

0011 Warranty Work (All Contract Work) (Am#4)

The monetary value of this bid item shall equal at least 1 per cent of the total of all bid items preceding it. A value less than 1 per cent will result in a determination of non-responsive bid. See Contract Specification Section 01770 CONTRACT CLOSEOUT, paragraph "Contractor's Response to Construction Warranty Service Requirements."

Job Sum * $_____**

TOTAL BID $_____

BIDDING SCHEDULE
(to be attached to SF 1442)

NOTES:

1. ARITHMETIC DISCREPANCIES: (1989 JUL)

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:

(1)Obviously misplaced decimal points will be corrected;

(2)In case of discrepancy between unit price and extended price, the unit price will govern;

(3)Apparent errors in extension of unit prices will be corrected; and

(4)Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purposes of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids. (EFARS 14.406-2)

2. If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.

3. Bidders must bid on all items.

4. Costs attributable to Division 01 - General Requirements are assumed to be prorated among bid items listed.

5. Responders are advised that this requirement may be delayed, canceled or revised at any time during the solicitation, selection, evaluation, negotiation and/or final award process based on decisions related to DOD changes in force structure and disposition of the Armed Services.

6. For the purpose of this solicitation, the word "item" shall be considered to mean "schedule" as used in Provision 52,214-0019, CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION, in Section 00100 INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS, excluding additives, deductives or options

7. ABBREVIATIONS

In	inch
Ft	foot

END OF BIDDING SCHEDULE

SECTION 02360

SOIL TREATMENT FOR SUBTERRANEAN TERMITE CONTROL
03/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

7 USC Section 136	Federal Insecticide, Fungicide, and Rodenticide Act

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Termiticide Application Plan; G

Termiticide application plan with proposed sequence of treatment work with dates and times. The termiticide trade name, EPA registration number, chemical composition, formulation, concentration of original and diluted material, application rate of active ingredients, method of application, area/volume treated, amount applied; and the name and state license number of the state certified applicator shall be included.

Termiticides

Manufacturer's label and Material Safety Data Sheet (MSDS) for termiticides proposed for use.

Foundation Exterior

Written verification that other site work will not disturb the treatment.

Utilities and Vents

Written verification that utilities and vents have been located.

Verification of Measurement

Written verification that the volume of termiticide used meets the application rate.

Application Equipment

A listing of equipment to be used.

Warranty; G

Copy of Contractor's warrany.

SD-04 Samples

Termiticides

Submit on request samples of the pesticides used in this work or the Contracting Officer may draw, at any time and without prior notice, from stocks at the job site. Should analysis, performed by the Government, indicate such samples to contain less than the amount of active ingredient specified on the label, work performed with such products shall be repeated, with pesticides conforming to this specification, at no additional cost to the Government.

SD-06 Test Reports

Equipment Calibration and Tank Measurement

Certification of calibration tests conducted on the equipment used in the termiticide application.

Soil Moisture

Soil moisture test result.

Quality Assurance

Pest Management Report and copies of daily records signed by an officer of the Contractor.

SD-07 Certificates

Qualifications; G

Qualifications and state license number of the termiticide applicator.

1.3 QUALIFICATIONS

The Contractor's principal business shall be pest control. The Contractor shall be licensed and the termiticide applicators certified in the state where the work is to be performed. Termiticide applicators shall also be certified in the U.S. Environmental Protection Agency (EPA) pesticide applicator category which includes structural pest control.

The Contractor shall:

a. Have personnel certified as applicators as required by the Texas Structural Pest Control Board and coordinate with appropriate personnel at Fort Hood prior to application.

b. Provide a submittal with the following information to Contracting

Officer:

(1) Quantity of pesticide used.

(2) Rate of dispersion.

(3) Percent of use.

(4) Total amount used.

1.4 SAFETY REQUIREMENTS

Formulate, treat, and dispose of termiticides and their containers in accordance with label directions. Draw water for formulating only from sites designated by the Contracting Officer, and fit the filling hose with a backflow preventer meeting local plumbing codes or standards. The filling operation shall be under the direct and continuous observation of a contractor's representative to prevent overflow. Secure pesticides and related materials under lock and key when unattended. Ensure that proper protective clothing and equipment are worn and used during all phases of termiticide application. Dispose of used pesticide containers off Government property.

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Delivery

Termiticide material shall be delivered to the site in the original unopened containers bearing legible labels indicating the EPA registration number and manufacturer's registered uses. All other materials to be used on site for the purpose of termite control shall be delivered in new or otherwise good condition as supplied by the manufacturer or formulator.

1.5.2 Storage

Materials shall be stored in designated areas and in accordance with manufacturer's labels. Termiticides and related materials shall be kept under lock and key when unattended.

1.5.3 Handling

Termiticides shall be handled in accordance with manufacturer's labels. Manufacturer's warnings and precautions shall be observed. Materials shall be handled preventing contamination by dirt, water, and organic material. Protect termiticides from sunlight as recommended by the manufacturer.

1.6 INSPECTION

Termiticides shall be inspected upon arrival at the job site for conformity to type and quality in accordance with paragraph TERMITICIDES. Each label shall bear evidence of registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended or under appropriate regulations of the host county. Other materials shall be inspected for conformance with specified requirements. Unacceptable materials shall be removed from the job site.

1.7 WARRANTY

The Contractor shall provide a 5-year written warranty against infestations

or reinfestations by subterranean termites of the buildings constructed under this contract. Warranty shall include annual inspections of the buildings. If live subterranean termite infestation or subterranean termite damage is discovered during the warranty period, and the soil and building conditions have not been altered in the interim, the Contractor shall:

a. Retreat the soil and perform other treatment as may be necessary for elimination of subterranean termite infestation;

b. Repair damage caused by termite infestation; and

c. Reinspect the building approximately 180 days after the retreatment.

1.8 QUALITY ASSURANCE

The Contractor shall comply with 7 USC Section 136 for requirements on contractor's licensing, certification, and record keeping. The Contractor shall maintain daily records using Pest Management Maintenance Record and submit copies of records when requested by the Contracting Officer. Upon completion of this work, submit Pest Management Report identifying target pest, type of operation, brand name and manufacturer of pesticide, formulation, concentration or rate of application used.

PART 2 PRODUCTS

2.1 TERMITICIDES

Termiticides shall be currently registered by the EPA or approved for such use by the appropriate agency of the host county. Termiticide shall be selected for maximum effectiveness and duration after application. The selected termiticide shall be suitable for the soil and climatic conditions at the project site.

PART 3 EXECUTION

3.1 TECHNICAL REPRESENTATIVE

The certified installation pest management coordinator shall be the technical representative, shall be present at all meetings concerning treatment measures for subterranean termites, and may be present during treatment application. The command Pest Control Coordinator shall be contacted prior to starting work.

3.2 SITE PREPARATION

Site preparation shall be in accordance with Sections 02231 CLEARING AND GRUBBING, and 02300A EARTHWORK. Work related to final grades, landscape plantings, foundations, or any other alterations to finished construction which might alter the condition of treated soils, shall be coordinated with this specification.

3.2.1 Ground Preparation

Food sources shall be eliminated by removing debris from clearing and grubbing and post construction wood scraps such as ground stakes, form boards, and scrap lumber from the site, before termiticide application begins.

3.2.2 Verification

Before work starts, the Contractor shall verify that final grades are as indicated and smooth grading has been completed in accordance with Section 02300A EARTHWORK. Soil particles shall be finely graded with particles no larger than 1 inch and compacted to eliminate soil movement to the greatest degree.

3.2.3 Foundation Exterior

The Contractor shall provide written verification that final grading and landscape planting operations will not disturb treatment of the soil on the exterior sides of foundation walls, grade beams, and similar structures.

3.2.4 Utilities and Vents

The Contractor shall provide written verification that the location and identity of HVAC ducts and vents, water and sewer lines, and plumbing have been accomplished prior to the termiticide application.

3.2.5 Crawl and Plenum Air Spaces

The Contractor shall provide written verification that the location and identity of crawl and plenum air spaces have been accomplished prior to the termiticide application.

3.3 SITE CONDITIONS

The following conditions shall determine the time of application.

3.3.1 Soil Moisture

Soils to be treated shall be tested immediately before application. Soil moisture content shall be tested to a minimum depth of 3 inches. The soil moisture shall be as recommended by the termiticide manufacturer. The termiticide will not be applied when soil moisture exceeds manufacturer's recommendations because termiticides do not adhere to the soil particles in saturated soils.

3.3.2 Runoff and Wind Drift

Termiticide shall not be applied during or immediately following heavy rains. Applications shall not be performed when conditions may cause runoff or create an environmental hazard. Applications shall not be performed when average wind speed exceeds 10 miles per hour. The termiticide shall not be allowed to enter water systems, aquifers, or endanger humans or animals.

3.3.2.1 Vapor Barriers and Waterproof Membranes

Termiticide shall be applied prior to placement of a vapor barrier or waterproof membrane.

3.3.3 Placement of Concrete

Concrete covering treated soils shall be placed as soon as the termiticide has reached maximum penetration into the soil. Time for maximum penetration shall be as recommended by the manufacturer.

3.4 TERMITICIDE TREATMENT

The Contractor shall submit a Termiticide Application Plan for approval before starting the specified treatment.

3.4.1 Equipment Calibration and Tank Measurement

Immediately prior to commencement of termiticide application, calibration tests shall be conducted on the application equipment to be used and the application tank shall be measured to determine the volume and contents. These tests shall confirm that the application equipment is operating within the manufacturer's specifications and will meet the specified requirements. The Contractor shall provide written certification of the equipment calibration test results within 1 week of testing.

3.4.2 Mixing and Application

Formulating, mixing, and application shall be performed in the presence of the Contracting Officer or the technical representative. A closed system is recommended as it prevents the termiticide from coming into contact with the applicator or other persons. Water for formulating shall only come from designated locations. Filling hoses shall be fitted with a backflow preventer meeting local plumbing codes or standards. Overflow shall be prevented during the filling operation. Prior to each day of use, the equipment used for applying termiticides shall be inspected for leaks, clogging, wear, or damage. Any repairs are to be performed immediately.

3.4.3 Treatment Method

For areas to be treated, the Contractor shall establish complete and unbroken vertical and/or horizontal soil poison barriers between the soil and all portions of the intended structure which may allow termite access to wood and wood related products. Application shall not be made to areas which serve as crawl spaces or for use as a plenum air space.

3.4.3.1 Surface Application

Surface application shall be used for establishing horizontal barriers. Surface applicants shall be applied as a coarse spray and provide uniform distribution over the soil surface. Termiticide shall penetrate a minimum of 1 inch into the soil, or as recommended by the manufacturer.

3.4.3.2 Rodding and Trenching

Rodding and trenching shall be used for establishing vertical soil barriers. Trenching shall be to the depth of the foundation footing. Width of trench shall be as recommended by the manufacturer, or as indicated. Rodding or other approved method may be implemented for saturating the base of the trench with termiticide. Immediately after termiticide has reached maximum penetration as recommended by the manufacturer, backfilling of the trench shall commence. Backfilling shall be in 6 inch rises or layers. Each rise shall be treated with termiticide.

3.4.4 Sampling

The Contracting Officer may draw from stocks at the job site, at any time and without prior notice, samples of the termiticides used to determine if the amount of active ingredient specified on the label is being applied.

3.5 VERIFICATION OF MEASUREMENT

Once termiticide application has been completed, tank contents shall be measured to determine the remaining volume. The total volume measurement of used contents for the application shall equal the established application rate for the project site conditions. The Contractor shall provide written verification of the measurements.

3.6 CLEAN UP, DISPOSAL, AND PROTECTION

Once application has been completed, the Contractor shall proceed with clean up and protection of the site without delay.

3.6.1 Clean Up

The site shall be cleaned of all material associated with the treatment measures, according to label instructions, and as indicated. Excess and waste material shall be removed and disposed off site.

3.6.2 Disposal of Termiticide

The Contractor shall dispose of residual termiticides and containers off Government property, and in accordance with label instructions and EPA criteria.

3.6.3 Protection of Treated Area

Immediately after the application, the area shall be protected from other use by erecting barricades and providing signage as required or directed by the Contracting Officer. Signage shall be placed inside the entrances to crawl spaces and shall identify the space as treated with termiticide and not safe for children and animals.

3.7 CONDITIONS FOR SATISFACTORY TREATMENT

3.7.1 Equipment Calibrations and Measurements

Where results from the equipment calibration and tank measurements tests are unsatisfactory, re-treatment will be required.

3.7.2 Testing

Should an analysis, performed by a third party, indicate that the samples of the applied termiticide contain less than the amount of active ingredient specified on the label, and/or if soils are treated to a depth less than specified or approved, re-treatment will be required.

3.7.3 Disturbance of Treated Soils

Soil and fill material disturbed after treatment shall be re-treated before placement of slabs or other covering structures.

3.7.4 Termites Found Within the Warranty Period

If live subterranean termite infestation or termite damage is discovered during the warranty period, the Contractor shall re-treat the site.

3.8 RE-TREATMENT

Where re-treatment is required, the Contractor shall comply with the requirements specified in paragraph WARRANTY.

-- End of Section --

SECTION 02713A

BITUMINOUS BASE COURSE
08/97

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 102	(1983; R 1996) Spot Test of Asphaltic Materials

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 29/C 29M	(1997) Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 127	(1988; R 1993el) Specific Gravity and Absorption of Course Aggregate
ASTM C 128	(1997) Specific Gravity and Absorption of Fine Aggregate
ASTM C 131	(1996) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(1996a) Sieve Analysis of Fine and Coarse Aggregates
ASTM C 183	(1997) Sampling and the Amount of Testing of Hydraulic Cement
ASTM D 5	(1997) Penetration of Bituminous Materials
ASTM D 75	(1987; R 1997) Sampling Aggregates
ASTM D 140	(2000) Sampling Bituminous Materials
ASTM D 242	(1995) Mineral Filler for Bituminous Paving Mixtures
ASTM D 1559	(1989) Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D 1856	(1995a) Recovery of Asphalt From Solution by Absorption Method

ASTM D 2172	(1995) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 2216	(1998) Laboratory Determination of Water (Moisture) Content of Soil and Rock
ASTM D 2726	(1996el) Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixture
ASTM D 3381	(1999) Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 3515	(1996) Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
ASTM D 4318	(2000) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Job-Mix Formula (JMF)

Mix design at least 30 days before it is to be used.

Waybills and delivery tickets
Sources of Aggregates

Copies of waybills and delivery tickets during the progress of the work. Certified waybills and delivery tickets for all materials actually used. Plan for operation of a new source of aggregates well in advance of starting production.

SD-04 Samples

Sources of Aggregates

Samples of a new source of aggregates for approval.

SD-06 Test Reports

Sources of Aggregates
Bituminous Materials
Sampling and testing

Copies of field tests results within 24 hours after the tests are performed. Certified copies of tests results for approval not less than 30 days before material is required for the work.

1.3 SAMPLING AND TESTING

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by an approved commercial testing laboratory or by facilities furnished by the Contractor. No work requiring testing shall be permitted until the facilities have been inspected and approved. The first inspection shall be at the expense of the Government. Cost incurred for any subsequent inspection required because of failure of the facilities to pass the first inspection will be charged to the Contractor. Tests shall be performed in sufficient numbers and at the locations and times directed to ensure that materials, mixtures and compaction meet specified requirements. Samples of finished pavement, including samples that span the longitudinal joint, shall be obtained by the Contractor. Sizes of samples shall be suitable to determine conformance to density, thickness, and other specified requirements. Samples shall be taken at start of paving operations and at intervals throughout paving operations as directed. Samples of plant mixtures will be taken and tested by the Contractor to determine conformance to specified requirements. Certified copies of the test results shall be furnished to the Contracting Officer.

1.3.1 Aggregates

Sampling shall be in accordance with ASTM D 75. Samples of aggregates shall be tested at the start of production and at intervals during production of the bituminous base course. Intervals and points of sampling will be as approved. Test results on these samples will be the basis for approval of specific lots of aggregates.

1.3.2 Mineral Filler

Sampling of mineral filler shall conform to ASTM C 183.

1.3.3 Bituminous Materials

Sampling of bituminous materials shall conform to ASTM D 140.

1.3.4 Field Sampling of Pavements and Mixtures

The type, size, and locations of samples will be approved. The Contractor shall furnish all tools, labor, and materials for cutting samples and will be responsible for replacing pavement to meet specified requirements. Samples of finished pavement shall be cut at the rate of one sample per 2000 square yards of finished pavement.

1.4 PLANT, EQUIPMENT, MACHINES, TOOLS, AND PERSONNEL

1.4.1 Bituminous Plant

The bituminous plant shall be of such capacity, as specified herein, to produce the quantities of bituminous mixtures required for the project within the completion time of the contract. Hauling equipment, paving machines, rollers, miscellaneous equipment, and tools shall be provided in sufficient numbers and capacity and in proper working condition to place the bituminous paving mixtures at a rate equal to the plant output. A sufficient number of adequately trained personnel shall be available during paving operations to produce a pavement meeting the requirements in this specification.

1.4.2 Mixing Plants

Mixing plants shall be an automatic or semiautomatic controlled, commercially manufactured unit designed, coordinated, and operated to consistently produce a mixture within the job-mix formula (JMF). The plant shall have a minimum capacity of 60 tons per hour. Drum mixers will be prequalified at the production rate to be used during actual mix production. The prequalification tests will include extraction in accordance with ASTM D 2172 and recovery of the asphalt cement in accordance with ASTM D 1856. The penetration of the recovered asphalt binder shall not be less than 60 percent of the original penetration in accordance with ASTM D 5.

1.5 WEATHER LIMITATIONS

Bituminous courses shall not be constructed when the underlying course contains free surface water. Unless otherwise directed, asphalt courses shall not be constructed when temperature of the surface of the underlying course is below 40 degrees F.

1.6 Waybills and Delivery Tickets

Copies of waybills and delivery tickets shall be submitted during progress of work. Before the final statement is allowed, the Contractor shall submit certified waybills and certified delivery tickets for all aggregates and bituminous materials actually used in construction covered by the contract. The Contractor shall not remove bituminous material from the tank cars or storage tanks until the initial outage and temperature measurements have been taken, nor shall the car or tank be released until the final outage has been taken by the Contracting Officer.

PART 2 PRODUCTS

2.1 AGGREGATES

Aggregates shall consist of crushed stone, crushed slag, crushed gravel screenings, sand, and mineral filler, as required. The portion of these materials retained on the No. 4 sieve shall be known as coarse aggregate; the portion passing the No. 4 sieve and retained on the No. 200 sieve, as fine aggregate; and the portion passing the No. 200 sieve, as mineral filler.

2.1.1 Coarse Aggregates

Coarse aggregates shall consist of clean, sound, durable fragments of crushed stone, crushed slag, or crushed gravel meeting the following requirements:

2.1.1.1 Aggregate Wear

The percentage of wear shall not exceed 50 after 500 revolutions, as determined in accordance with ASTM C 131.

2.1.1.2 Dry Weight of Crushed Slag

The dry weight of crushed slag shall be not less than 75 pcf as determined in accordance with ASTM C 29/C 29M.

2.1.2 Fine Aggregates

Fine aggregates shall consist of clean, durable natural sands; manufactured

sands prepared by crushing stone, slag, or gravel, or any combination of natural and manufactured sands. Natural sands shall consist of grains of clean, hard, durable rock.

2.1.3 Mineral Filler

Mineral filler shall conform to ASTM D 242.

2.1.4 Liquid Limit and Plasticity Index

Liquid limit and plasticity index shall be measured in accordance with ASTM D 4318. Requirements stated herein shall apply to any aggregate component that is blended to meet the required gradation and also to the aggregate in the completed base course. The portion of the aggregate passing the No. 40 sieve shall be either nonplastic or have a liquid limit not greater than 25 and a plasticity index not greater than 5.

2.1.5 Sources of Aggregates

Sources of aggregates shall be selected well in advance of the time the material will be required in the work. If a previously developed source is selected, test results shall be submitted with evidence that central plant hot-mix bituminous pavements constructed with the aggregates have had a satisfactory service record of at least 5 years under similar climatic conditions. An inspection of the producer's operation may be made. When new sources are developed, the Contractor shall indicate the sources and submit samples for approval and a plan for operation well in advance of starting production. Proposed sources may be inspected. The Contractor shall make such tests and other investigations as necessary to determine whether or not aggregates meeting the requirements specified can be produced from the proposed sources. Inspection of the source of aggregate does not relieve the Contractor of the responsibility for delivery at the jobsite of aggregates that meet requirements specified herein.

2.2 BITUMINOUS MATERIALS

Sources where bituminous materials are obtained shall be selected in advance of time when materials will be required in the work, and test results shall be submitted for approval not less than 30 days before such material is required for use in the work.

2.2.1 Asphalt Cement

Asphalt cement to be mixed with mineral aggregates shall conform to ASTM D 3381, Grade AC-20. In addition, the asphalt cement shall show a negative spot when subjected to the spot test in accordance with AASHTO T 102, using the standard naphtha specified therein.

2.2.2 Quality Control

In addition to initial qualification testing of bituminous materials, samples shall be taken before and during construction when shipments of bituminous materials are received or when necessary to assure that some condition of handling or storage has not been detrimental to the bituminous material.

2.3 AGGREGATE GRADATION

Mineral aggregate shall be of such size that percentage composition by

weight, as determined by ASTM C 136, will conform to the gradation Type A or B in TXDOT Item 3146. The table is based on aggregates of uniform specific gravity; percentages passing various sieves may be changed by the Contracting Officer when aggregates of varying specific gravities are used.

2.4 COMPOSITION OF MIXTURE

2.4.1 Job-Mix Formula (JMF)

No bituminous mixture shall be produced until a JMF has been approved by the Contracting Officer. The formula will indicate the percentage of each sieve fraction of aggregate, the percentage of bitumen, and the temperature of the completed mixture when discharged from the mixer. The JMF will be allowed tolerances given in TABLE 1 herein. Bitumen content and aggregate gradation may be adjusted within the limits of tables specified herein to improve the paving mixtures, as directed, without adjustments in contract prices.

TABLE 1. JOB-MIX FORMULA TOLERANCES

Material	Tolerance, Plus or Minus
Aggregate passing No. 4 sieve or larger	5 percent
Aggregate passing Nos. 8, 16, 30, and 50 sieves	4 percent
Aggregate passing Nos. 100 and 200 sieves	2 percent
Bitumen	0.25 percent
Temperature of mixing	25 degrees F

2.4.2 Test Properties of Bituminous Mixtures

The finished mixture shall meet requirements described below when tested in accordance with ASTM D 1559. All samples will be compacted with 50 blows of specified hammer on each side of sample.

2.4.2.1 Stability, Flow, and Voids

a. Nonabsorptive Aggregate: When the water-absorption value of the entire blend of aggregate does not exceed 2.5 percent as determined by ASTM C 127 and ASTM C 128, aggregate is designated as nonabsorptive. The apparent specific gravity shall be used in computing the voids total mix and voids filled with bitumen; the mixture shall meet the requirement in TABLE 2.

TABLE 2. NONABSORPTIVE AGGREGATE MIXTURE

Test Property	Limits
Stability, minimum, pounds	1800
Flow, maximum, 1/100-inch units	16
Voids total mix, percent	4-6
Voids filled with bitumen, percent	65-75

b. Absorptive Aggregate: When the water-absorption value of the entire blend of aggregate exceeds 2.5 percent as determined in ASTM C 127 and ASTM C 128, the aggregate is designated as absorptive. Bulk-impregnated specific gravity, as determined from

ASTM D 2726, shall be used in computing the percentages of the voids total mix and voids filled with bitumen; the mixture shall meet the requirements in TABLE 3.

TABLE 3. ABSORPTIVE AGGREGATE MIXTURE

Test Property	Limits
Stability, minimum, pounds	1800
Flow, maximum, 1/100-inch units	16
Voids total mix, percent	3-5
Voids filled with bitumen, percent	70-80

2.4.2.2 Reduction in Stability by Immersion

If the index of retained stability of specimens of composite mixture as determined from CRD-C 652-95 is less than 75 percent, aggregates shall be rejected or the bitumen shall be treated with an approved antistripping agent. The quantity or type of antistripping agent to add to the bitumen shall be sufficient, as approved, to produce an index of retained stability of not less than 75 percent. Payment will not be made to the Contractor for the addition of the antistripping agent that may be required.

PART 3 EXECUTION

3.1 CONDITIONING OF UNDERLYING COURSE

Prior to placing the bituminous base course, the underlying surface shall be cleaned of foreign or objectionable matter. The condition of the underlying course will be inspected and approved.

3.2 MIXING

3.2.1 Preparation of Mineral Aggregates

Each aggregate stockpile shall be placed and maintained in such a manner to prevent segregation. Rates of feed of aggregates shall be regulated so that the moisture content and temperature of aggregates will be within tolerances specified herein. Dry storage shall be provided for mineral filler.

3.2.2 Preparation of Bituminous Mixtures

Aggregates, mineral filler, and bitumen shall be conveyed into the mixer in proportionate quantities required to meet the JMF. The mixing time shall be as required to obtain a uniform coating of the aggregate with the bituminous material. The temperature of bitumen at time of mixing shall not exceed 300 degrees F. The temperature of aggregate and mineral filler in the mixer shall not exceed 325 degrees F when bitumen is added. Overheated and carbonized mixtures or mixtures that foam will be rejected.

3.2.3 Water Content of Aggregates

Drying operations shall reduce the water content of mixture to less than 0.75 percent. The water content test will be conducted in accordance with ASTM D 2216. If the water content is determined on hot bin samples, the water content will be a weighted average based on composition of blend.

3.2.4 Storage of Bituminous Paving Mixture

The mixture shall be stored according to the requirements of ASTM D 3515.

3.3 TRANSPORTATION OF BITUMINOUS MIXTURE

Transportation of bituminous mixture from the paving plant to the site shall be in trucks having tight, clean, smooth beds lightly coated with an approved releasing agent to prevent adhesion of mixture to truck bodies. Excessive releasing agent will be drained prior to loading. Each load shall be covered with canvas or other approved material of ample size to protect mixture from weather and prevent loss of heat. Loads that have crusts of cold, unworkable material or have become wet by rain will be rejected. Hauling over freshly placed material will not be permitted.

3.4 PLACING

Bituminous mixtures shall not be placed without ample time to complete spreading and rolling during daylight hours, unless satisfactory artificial lighting is provided.

3.4.1 Spraying of Contact Surfaces of Structures

Contact surfaces of previously constructed pavement, curbs, manholes, and similar structures shall be sprayed with a thin coat of bituminous material conforming to the requirements of Section 02748A BITUMINOUS TACK AND PRIME COATS.

3.4.2 Offsetting Joints in Bituminous Base Course

The bituminous base course shall be placed so that longitudinal joints will be offset from joints in the underlying course by at least 1 foot. Transverse joints shall be offset by at least 2 feet from transverse joints in the underlying course.

3.4.3 General Requirements for Use of Mechanical Spreader

The range of temperatures of mixtures, when dumped into the mechanical spreader, shall be as approved. Mixtures having temperatures less than 225 degrees F when dumped into the mechanical spreader will be rejected. The mechanical spreader shall be adjusted and speed regulated so that the surface of the course being laid will be smooth and continuous without tears and pulls, and of such depth that, when compacted, the surface will conform to the cross section, grade, and contour indicated. Placing with respect to the center line, areas with crowned sections, or the high side of areas with one-way slope shall be as directed. Placing of the mixture shall be as nearly continuous as possible, and the speed of placing shall be adjusted, as directed, to permit proper rolling. When segregation occurs in the mixture during placing, the spreading operation shall be suspended until the cause is determined and corrected. Irregularities in alignment of the course left by the mechanical spreader shall be corrected by trimming directly behind machine. Immediately after trimming, the edges of the course shall be thoroughly compacted by tamping laterally with a lute. Distortion of the course during tamping will not be permitted.

3.4.4 Special Requirements for Placing Strips Succeeding Initial Strips

In placing each succeeding strip after the initial strip has been spread and compacted as specified below, the screed of the mechanical spreader

shall overlap previously placed strip 3 to 4 inches and shall be sufficiently high so that compaction will produce a smooth, dense joint. The mixture placed on the edge of the previously placed strip by the mechanical spreader shall be pushed back to the edge of the strip being placed by using a lute. Excess mixture shall be removed and wasted.

3.4.5 Handwork Behind Machine Spreading

A sufficient number of shovelers and rakers shall follow the spreading machine, adding or removing hot mixture and raking mixtures as required to obtain a course that, when completed, will conform to all requirements specified herein. Excessive handwork will not be permitted. Broadcasting or fanning of the mixture over areas being compacted will not be permitted.

3.4.6 Hand Spreading in Lieu of Machine Spreading

In areas where the use of machine spreading is impractical, the mixture shall be spread by hand. Spreading shall be in a manner to prevent segregation. The mixture shall be spread uniformly with hot rakes in a loose layer of thickness that, when compacted, will conform to the required grade and thickness.

3.5 GRADE AND SURFACE-SMOOTHNESS REQUIREMENTS

Finished surfaces of bituminous base courses, when tested as specified below, shall conform to the gradeline and elevations shown and to surface-smoothness requirements specified.

3.5.1 Plan Grade

Finished surfaces shall conform, within tolerances specified, to the lines, grades, and cross sections indicated. Finished surfaces of runways, taxiways, and aprons shall vary not more than 0.04 foot from the plan gradeline or elevation established and approved at the site of work. Finished surfaces of nonaircraft traffic areas, such as blast pads and stabilized shoulders, shall vary not more than 0.06 foot from the plan gradeline and elevation established and approved at the site. Finished surfaces at the juncture with other pavements shall coincide with finished surfaces of abutting pavements. The 0.04-and 0.06-foot deviations from the plan gradeline and elevation will not be permitted in areas of pavements where closer conformance with plan grade and elevation is required for the proper functioning of drainage and other appurtenant structures involved.

3.5.2 Surface Smoothness

Finished surfaces shall not deviate from the testing edge of a 12 foot straightedge more than 1/4 inch in any direction.

3.5.3 Equipment

The Contractor shall furnish and maintain at the site, in good condition, one straightedge for each bituminous paver for use in testing the finished surface. Straightedges shall be aluminum and have blades of box or box-girder cross section with flat bottom reinforced to insure rigidity and accuracy. Straightedges shall have handles to facilitate movement on pavement.

3.6 COMPACTION OF MIXTURE

Rolling shall begin as soon after placing as the mixture will bear roller without undue displacement. Delays in rolling freshly spread mixture will not be permitted. After the initial rolling, preliminary tests of the crown, grade, and smoothness shall be made by the Contractor. Deficiencies shall be corrected so that the finished course will conform to requirements for the grade and smoothness specified herein. After the Contractor assures himself of meeting crown, grade, and smoothness requirements, rolling shall be continued until a density of at least 96 percent of laboratory compacted specimens of the same mixture is obtained. Places inaccessible to rollers shall be thoroughly compacted with hot hand tampers.

3.6.1 Testing of Mixture

At the start of plant operation, a quantity of the mixture sufficient to construct a test section at least 50 feet long and two spreader widths wide shall be prepared. The mixture shall be placed, spread, and rolled with equipment to be used in the project and in accordance with requirements specified above. This test section shall be tested and evaluated and shall conform to all specified requirements. If tests indicate that the pavement does not conform to specification requirements, necessary adjustments to plant operations and rolling procedures shall be made immediately. Additional test sections shall be constructed and sampled for conformance to specification requirements. In no case shall the Contractor start production of the bituminous base course mixture without approval.

3.6.2 Correcting Deficient Areas

Mixtures that become contaminated or are defective shall be removed. Skin patching of an area that has been rolled will not be permitted. Holes shall be cut the full thickness of the base course so that the sides are perpendicular and parallel to the direction of traffic and the edges are vertical. Bulges shall be sprayed with bituminous materials conforming to requirements of Section 02748A BITUMINOUS TACK AND PRIME COATS. Fresh paving mixture shall be placed in holes in sufficient quantity so that the finished surface will conform to grade, smoothness, and density requirements.

3.7 JOINTS

3.7.1 General

Joints between old and new pavements or between successive day's work, or joints that have become cold because of delay, shall be made carefully to insure continuous bond between old and new sections of course. All joints shall have the same texture, density, and smoothness as other sections of the course. Contact surfaces of previously constructed pavements that have become coated with dust, sand, or other objectionable material shall be cleaned by brushing or cut back with approved power saw, as directed. The surface against which new material is placed shall be sprayed with a thin, uniform coat of bituminous material conforming to requirements of Section 02748A BITUMINOUS TACK AND PRIME COATS. The material shall be applied far enough in advance of placement of the fresh mixture to insure adequate curing. Care shall be taken to prevent damage or contamination of sprayed surface.

3.7.2 Transverse Joints

The roller shall pass over the unprotected end of freshly placed mixture only when placing of the course is discontinued or when delivery of the

mixture is interrupted to the extent that the unrolled material may become cold. In all cases, the edge of the previously placed course shall be cut back to expose an even, vertical surface for the full thickness of the course. In continuing placement of the strip, the mechanical spreader shall be positioned on the transverse joint so that sufficient hot mixture will be spread to obtain a joint after rolling that conforms to the required density and smoothness specified herein.

3.7.3 Longitudinal Joints

Edges of a previously placed strip that have cooled or are irregular, honeycombed, poorly compacted, damaged, or otherwise defective, and unsatisfactory sections of the joint shall be cut back to expose a clean, sound surface for the full thickness of the course as directed.

3.8 EDGES OF PAVEMENT

Bulges adjacent to shoulders shall be trimmed neatly to the line.

3.9 PROTECTION OF PAVEMENT

After final rolling of the pavement, no vehicular traffic of any kind shall be permitted until the pavement has cooled to ambient temperature.

-- End of Section --

SECTION 08581

BULLET RESISTANT AND BLAST RESISTANT ALUMINUM WINDOWS
08/01
Amendment No. 0007

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ALUMINUM ASSOCIATION (AA)

AA 45	(1980) Aluminum Finishes

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 501	Superior Performance Organic Coatings on Aluminum Extrusions and Panels

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 570	Steel, Sheet and Strip, Carbon, Hot-Rolled
ASTM A 611	(1997) Structural Steel (SS), Sheet, Carbon, Cold-Rolled
ASTM C 509	(1994) Elastomeric Cellular Preformed Gasket and Sealing Material
ASTM C 920	(2002) Elastomeric Joint Sealants
ASTM E 283	(1999) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimens
ASTM E 331	(2000) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

GANA Glazing Manual	(1997) Glazing Manual

UNDERWRITERS LABORATORIES (UL)

UL 752	Standard for Safety for Bullet-Resisting Equipment

1.2 PERFORMANCE REQUIREMENTS

1.2.1 General

Provide bullet resistant and blast resistant aluminum windows that comply with performance characteristics specified, as demonstrated by testing the manufacturer's assemblies according to test methods indicated. Coordinate requirements of this section with Section 08120, ALUMINUM DOORS AND FRAMES, and Section 08810A, GLASS AND GLAZING.

1.2.2 Thermal Movement

Design the bullet resistant and blast resistant aluminum window systems to provide for expansion and contraction of the component materials.

The system shall be capable of withstanding a metal surface temperature range of 180 degrees F without buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, stress on glass, or other detrimental effects.

1.2.3 Design Requirements

Provide bullet resistant and blast resistant aluminum windows that comply with structural performance, air infiltration, and water penetration requirements when tested in accordance with AAMA 501 performance criteria.

Wind Loads: Provide window assemblies capable of withstanding wind pressures of 20 psf inward and 20 psf outward acting normal to the plane of the wall.

1.2.4 Structural Performance

ASTM E 331 and AAMA 501. At the conclusion of the tests there shall be no glass breakage or permanent damage to fasteners, anchors, hardware, or actuating mechanism. Framing members shall have no permanent deformation in excess of 0.2 percent of their clear span.

Deflection Normal to the Plane of the Wall: Deflections shall not exceed 1/175 or 3/4 inch, whichever is less when subjected to structural performance by static pressure. The system shall not show any damage or failure when further subject to positive and negative loads of 30 psf to demonstrate a safety factor of 1.5 times design load.

1.2.5 Air Infiltration

When tested in accordance with AAMA 501 performance criteria, air infiltration shall not exceed .06 cfm per square foot with a pressure differential of 6.24 psf, equal to a 50 mph window (ASTM E 283).

1.2.6 Static Water Penetration

No uncontrolled water penetration shall occur when subjected to a static water penetration test with a pressure differential of 10 psf (ASTM E 331 and AAMA 501).

1.2.7 Dynamic Water Penetration

No uncontrolled water penetration shall occur when subjected to dynamic pressure per AAMA 501.

1.2.8 Uncontrolled Water Infiltration

The occurrence of condensation during water infiltration tests is acceptable. Other water leakage is acceptable only if all of the following conditions are satisfied: (a) the water is contained and drained to the exterior, (b) there is no wetting of a surface that would be visible to building occupants, and (c) there would be no staining or other damage to any part of the completed building or its furnishings. This definition of water leakage shall govern over other definitions which may appear in referenced documents.

1.2.9 Assembly Design

Provide gutters and weep system to collect and drain to the exterior water leakage and condensation. Glazing details shall permit glass replacement after initial construction, shall permit reuse of original gaskets, shall permit replacement glass of the same nominal size as original glass, and shall not require cutting of framing members or removal of interior finishes.

Interior window sill trim shall not deflect more than 0.125 inch when subjected to a concentrated force of 25 pounds at any point. Residual deflection after removal of force shall not exceed 0.062 inch.

Snap engaged components shall not disengage when subjected to a concentrated force of 10 pounds at any point or during uniform pressure structural tests at pressures less than or equal to 1.5 times design pressures. Snap engaged components shall be secured against migration. Snap engaged components shall not serve any primary structural function, such as retention of glass. Snap engaged plastic components are not permitted, except as nonstructural thermal improvement for interior trim. Joints in continuous snap covers and other continuous trim shall have splice sleeves of the same material and finish as the cover or trim.

Provide completely prefabricated, assembled, and shop glazed unitized components to the field for shortest possible field erection time.

Bullet Resistant Design: Aluminum windows shall meet UL 752 bullet resistance Level 1.

Blast Resistant Design: Aluminum windows shall meet Explosive Weight I, Very Low Protection Level.

1.3 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Aluminum window units; G

Submit drawings for each bullet resistant and blast resistant aluminum window indicating elevations of windows, full-size sections, thickness of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, complete details of setting methods and materials for each type of glazing material, details of hardware, mullion details, support conditions for the glass, installation details, and other related items.

SD-03 Product Data

Aluminum window units; G

Setting materials

Submit window frame data for each type and finish.

SD-04 Samples

Aluminum window units; G

Three (3) 12 inch long sections or formed shapes of aluminum window units. Submit with factory-finished color coating.

SD-06 Test Reports

Test Reports; G

Provide certified test reports from a qualified independent testing laboratory showing that bullet resistant and blast resistant aluminum windows have been tested and comply with performance indicated or supported by calculations performed by an independent engineering firm recognized for bullet resistance and blast resistance work.

SD-10 Operation and Maintenance Data

Aluminum Window units, Data Package 1; G

Submit data package in accordance with Section 01781, "Operation and Maintenance Data."

1.4 QUALITY ASSURANCE

1.4.1 Installer Qualifications

Engage an experienced installer who has completed installations of bullet resistant and blast resistant aluminum windows similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance. Provide certified test reports from a qualified independent testing laboratory showing that bullet resistant and blast resistant aluminum windows have been tested and comply with performance indicated or supported by calculations performed by an independent engineering firm recognized for bullet resistance and blast resistance work.

1.4.2 Fabricator Qualifications

Provide bullet resistant and blast resistant aluminum windows fabricated by a firm experienced in producing systems that are similar to those indicated for this project and that have a record of successful in-service performance. The fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the work.

1.4.3 Single Source Responsibility

Provide products from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

a. Deliver products to the site in unopened containers, labeled plainly with manufacturers' name and brands. Deliver aluminum window assemblies in an undamaged condition. Exercise care in handling and hoisting windows during transportation and at the job site. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the windows.

b. Finished surfaces shall be protected during shipping and handling using the manufacturer's standard method, except that no coatings or lacquers shall be applied to surfaces to which sealants, caulking, or glazing compounds must adhere.

1.6 ENVIRONMENTAL CONDITIONS

Do not start glazing work until the outdoor temperature is above 40 degrees F and rising unless approved provisions are made to warm the glass and rabbet surfaces. Provide sufficient ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work if moisture collects on window assemblies or during rainy weather.

PART 2 PRODUCTS

2.1 ALUMINUM WINDOW UNITS

Aluminum window frames shall conform to AAMA 501 and the requirements specified herein. Provide windows of types, grades, performance classes, combinations, and sizes indicated or specified. Provide windows to accommodate glass and accessories. Each window shall be a complete factory-assembled unit with glass factory or field installed.

2.1.1 Aluminum Members

All aluminum extrusions shall be extruded from 6063-T6 alloy or equal with aluminum tensile strength (minimum 35.0 ksi ultimate, 32 ksi yield). Bullet resistant and blast resistant aluminum window framing systems shall be fabricated from extruded aluminum members 2 x 4-1/2 inches and 2 x 5-1/2 inches profile indicated. Include subframes and other reinforcing members as required to comply with design criteria.

2.1.1.1 Mullion Configuration

Provide pockets at the inside glazing face to receive specified glazing. Mullions shall be preassembled into preglazed units. Make provisions to drain moisture accumulation to the exterior.

2.1.2 Carbon Steel

Structural shapes, plates and bars, ASTM A 611 for cold rolled sheet and strip or ASTM A 570 for hot rolled sheet and strip.

2.1.3 Setting Blocks

Setting blocks shall be dense extruded silicone or EPDM with a hardness of 85 $\pm$ 5 durometer Shore A, a minimum of length of 4 inches, and a minimum width corresponding to the glass thickness. Setting blocks shall be

equidistant from the glass centerline. Location of setting blocks at glass quarter points is acceptable. The distance from the vertical glass edge to the nearest edge of the setting block shall not be less than 6 inches or 0.125 times glass width, whichever is greater. Shims used in conjunction with setting blocks shall be of same material, hardness, length, and width as the setting blocks.

2.1.4 Side Blocks

Provide two side blocks minimum at both jams at approximately the quarter points of the glass edge. Blocks shall be a 55 $\pm$ 5 durometer Shore A dense silicone or EPDM. Install block with 0.125 inch clearance between block and bearing surface. Positively secure blocks in position. Side blocks may be omitted where glass is secured with structural silicone.

2.1.5 Fasteners

Fasteners outboard of or within a glazing pocket, gutter, finished cavity, or other potentially wet location (after completion of construction) shall be stainless steel type 302 or 304. Fasteners inboard of potentially wet locations shall be stainless steel type 302 or 304, cadmium-plated carbon steel, or zinc-plated carbon steel (no less than grade 8 and 3/8 inch diameter.

Provide lock washer or other locking device at all bolted connections.

Where fasteners screw-anchor into aluminum members less than 0.125 inches thick, reinforce the interior with nonmagnetic stainless steel to receive screw threads.

2.2 PROVISIONS FOR GLAZING

Coordinate with provisions of Section 08810A, GLASS AND GLAZING, and as indicated herein and on the drawings. Provide types of glazing as follows:

GL-1: Bullet resistant glazing to meet UL 752, Level I requirements.

GL-2: Blast resistant glazing to meet [AM#0007]a minimum of 1/4-in nominal laminated glass for all exterior windows and glazed doors. The 1/4-in laminated glass consists of two nominal 1/8-in glass panes bonded together with a minimum of a 0.030-inch polyvinyl-butyral (PVB) interlayer. For insulated glass units, use 1/4-in laminated glass inner pane as a minimum.

2.3 SETTING MATERIALS

Provide types required for the applicable setting method specified in the GANA Glazing Manual, unless specified otherwise herein. Do not use metal sash putty, non-skinning compounds, nonresilient preformed sealers, or impregnated preformed gaskets.

2.3.1 Elastomeric Sealant

ASTM C 920, Type S or M, Grade NS, Class 12.5, Use NT. Use for channel or stop glazing and metal sash. Sealant shall be chemically compatible with setting blocks, edge blocks, and sealing tapes. Color of sealant shall be as selected.

2.3.2 Sealing Tapes, Beads or Gaskets

Gaskets or beads shall be at least 3/8 inch wide with a Shore "A" durometer hardness of 50 and conform to ASTM C 509.

2.4 FINISHES

2.4.1 Finishes

Exposed aluminum surfaces shall be factory finished with an anodic coating.

2.4.2 Anodic Coating

Clean exposed aluminum surfaces and provide an anodized finish conforming to AA 45. Finish shall be electrolytically deposited color-anodized, designation AA-M12-C22-A42, Architectural Class I 0.4 mil to 0.7 mil. Color shall be dark bronze.

2.5 FABRICATION

2.5.1 General

Bullet resistant and blast resistant aluminum windows shall comply with indicated design requirements and standards. Sizes and profile requirements are indicated on the drawings.

2.5.2 Prefabrication

Complete fabrication, assembly, finishing, and other work to the greatest extent possible before shipment to the project site. Disassemble components only as necessary for shipment and installation. Typical fixed modules shall be completely prefabricated, shop assembled, and shop glazed.

2.5.3 Perform Fabrication

Perform fabrication operations including cutting, fitting, forming, drilling, and grinding of metal work to prevent damage to exposed finish surfaces. Preassemble framing into prefabricated units and shop glaze insofar as practicable.

2.5.4 Welding

Comply with AWS. Restore mechanical finish. Welding behind finished surfaces shall be performed in such a manner as to minimize distortion and discoloration on the finished surface.

2.5.5 Reinforcing

Install reinforcing as required and as necessary for performance requirements, sag resistance, and rigidity.

2.5.6 Dissimilar Metals

Separate dissimilar metals with bituminous paint, or a suitable sealant, or a nonabsorptive plastic or elastomeric coating.

2.5.7 Continuity

Maintain accurate relation of planes and angles with hairline fit of contacting members.

2.5.8 Uniformity of Metal Finish

Abutting extruded aluminum members shall not have an integral color or texture variation greater than half the range indicated in the sample pair submitted.

2.5.9 Fasteners

Conceal fasteners wherever possible. Exposed fasteners shall not be allowed at typical frame conditions.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Method of Installation

Install in accordance with the bullet resistant and blast resistant window manufacturer's instructions and details. Set windows at proper elevation, location, and reveal. Brace properly to prevent distortion and misalignment. Bed screws or bolts in sill members, joints at mullions, and in mastic sealant of a type recommended by the aluminum window manufacturer. Install windows in a manner that will prevent entrance of water.

3.1.2 Glass Setting

Items to be glazed shall be either shop or field glazed using glass of the quality and thickness specified or indicated. Preparation and glazing, unless otherwise approved, shall conform to applicable recommendations in the GANA Glazing Manual. Windows may be glazed in conformance with one of the glazing methods described in the standards under which they are produced. Handle and install glazing materials in accordance with manufacturer's instructions.

3.1.3 Dissimilar Materials

Where aluminum surfaces are in contact with, or fastened to, masonry or dissimilar metals, except stainless steel or zinc, the aluminum surface shall be protected from dissimilar materials as recommended. Do not coat surfaces on which sealants are to adhere.

3.1.4 Anchors and Fastenings

Make provision for securing units to each other and to adjoining construction.

3.2 CLEANING

Clean interior and exterior surfaces of aluminum window units of mortar, paint spattering spots, and other foreign matter to present a neat appearance, to prevent fouling of weathering surfaces. Remove stained, discolored, or abraded aluminum windows that cannot be restored to their original condition, and replace with new windows.

-- End of Section --

SECTION 08810A

GLASS AND GLAZING
05/97
Amendment No. 0007

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1	(1984; R 1994) Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 509	(1994) Elastomeric Cellular Preformed Gasket and Sealing Material
ASTM C 864	(1999) Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
ASTM C 920	(2002) Elastomeric Joint Sealants
ASTM C 1036	(1991; R 1997) Flat Glass
ASTM C 1172	(1996el) Laminated Architectural Flat Glass
ASTM D 395	(1998) Rubber Property - Compression Set
ASTM E 773	(1997) Accelerated Weathering of Sealed Insulating Glass Units
ASTM E 774	(1997) Classification of the Durability of Sealed Insulating Glass Units
ASTM E 1300	(1998) Determining the Minimum Thickness and Type of Glass Required to Resist a Specified Load

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

16 CFR 1201	Safety Standard for Architectural Glazing Materials

UNDERWRITERS LABORATORIES (UL)

UL 752	Standard for Safety for Bullet-Resisting Equipment

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

GANA Glazing Manual (1997) Glazing Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80 (1999) Fire Doors and Fire Windows

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Installation; G

Drawings showing complete details of the proposed setting methods, mullion details, edge blocking, size of openings, frame details, materials, and types and thickness of glass.

SD-03 Product Data

Insulating Glass (Blast/Bullet Resistant); G
Glazing Accessories; G

Manufacturer's descriptive product data, handling and storage recommendations, installation instructions, and cleaning instructions.

SD-04 Samples

Insulating Glass (Blast/Bullet Resistant); G

Two 12 x 12 inch samples of each insulating glass unit.

SD-07 Certificates

Insulating Glass (Blast/Bullet Resistant); G

Certificates stating that the glass meets the specified requirements. Labels or manufacturers marking affixed to the glass will be accepted in lieu of certificates.

1.3 SYSTEM DESCRIPTION

Glazing systems shall be fabricated and installed watertight and airtight to withstand thermal movement and wind loading without glass breakage, gasket failure, deterioration of glazing accessories, and defects in the work. Glazed panels shall comply with the safety standards, as indicated in accordance with ANSI Z97.1. Glazed panels shall comply with indicated wind/snow loading in accordance with ASTM E 1300.

1.4 DELIVERY, STORAGE AND HANDLING

Glazing compounds shall be delivered to the site in the manufacturer's unopened containers. Glass shall be stored indoors in a safe, well ventilated dry location in accordance with manufacturer's instructions, and shall not be unpacked until needed for installation. Glass shall not be stored on site over 1 month.

1.5 PROJECT/SITE CONDITIONS

Glazing work shall not be started until outdoor temperature is above 40 degrees F and rising, unless procedures recommended by glass manufacturer and approved by Contracting Officer are made to warm the glass and rabbet surfaces. Ventilation shall be provided to prevent condensation of moisture on glazing work during installation. Glazing work shall not be performed during damp or raining weather.

1.6 WARRANTY

1.6.1 Insulating Glass (Blast/Bullet Resistant)

Manufacturer shall warrant the insulating glass to be free of fogging or film formation on the internal glass surfaces caused by failure of the hermetic seal for a period of 10 years from Date of Substantial Completion. Warranty shall be signed by manufacturer.

PART 2 PRODUCTS

2.1 FLOAT GLASS

2.1.1 Annealed Glass

Annealed glass shall be Type I transparent flat type, Class 1 - clear, Quality q3 - glazing select, 88 percent light transmittance, .94 percent shading coefficient, conforming to ASTM C 1036. Color shall be bronze as shown in Section 09000 BUILDING COLOR AND FINISH SCHEDULE.

2.2 ROLLED GLASS

2.2.1 Wired Glass

Wired glass shall be Type II flat type, Class 1 - translucent , Quality q8 - glazing, Form 1 - wired and polished both sides , 88 percent light transmittance, .94 percent shading coefficient, conforming to ASTM C 1036. Wire mesh shall be polished stainless steel Mesh 2 - square. Color shall be as shown in Section 09000 BUILDING COLOR AND FINISH SCHEDULE.

2.3 INSULATING GLASS (BLAST/BULLET RESISTANT)

Insulating glass shall be Class A preassembled units of dual-seal construction consisting of multiple lites of glass and polycarbonate glazing separated by an aluminum, steel, or stainless steel, spacer and dehydrated space conforming to ASTM E 773 and ASTM E 774. Spacer shall be roll-formed, with bent or tightly welded or keyed and sealed joints to completely seal the spacer periphery and eliminate moisture and hydrocarbon vapor transmission into airspace through the corners. Primary seal shall be compressed polyisobutylene and the secondary seal shall be a specially formulated silicone.

2.4 LAMINATED GLAZINGS

2.4.1 Insulated Laminated Glass

Laminated glass shall consist of multiple layers of Type I transparent float glass, Class 1-clear and 2-tinted Quality q3 - glazing select, conforming to ASTM C 1036. Glass shall be bonded together with PVB interlayer under pressure, or alternatives such as resin laminates, conforming to requirements of 16 CFR 1201 and ASTM C 1172. Layers of polycarbonate may also be used in the laminated glass units. Polycarbonate laminates shall be Type I transparent float, Class 1-clear, Quality q3 - glazing select. Provide UV stabilized polycarbonate as required. Additionally, provide anti-reflective low-emissivity coating on the No. 2 surface (inside surface of exterior pane). Color shall be bronze as indicated in Section 09000, BUILDING COLOR AND FINISH SCHEDULE. Laminated glass units shall be designed for the following criteria:

GL-1: Bullet-resistant glazing to meet UL 752, Level I requirements.

GL-2: Blast-resistant glazing to meet [AM#0007]a minimum of 1/4-in nominal laminated glass for all exterior windows and glazed doors. The 1/4-in laminated glass consists of two nominal 1/8-in glass panes bonded together with a minimum of a 0.030-inch polyvinyl-butyral (PVB) interlayer. For insulated glass units, use 1/4-in laminated glass inner pane as a minimum.

2.5 GLAZING ACCESSORIES

2.5.1 Preformed Tape

Preformed tape shall be elastomeric rubber extruded into a ribbon of a width and thickness suitable for specific application. Tape shall be of type which will remain resilient, have excellent adhesion, and be chemically compatible to glass, metal, or wood.

2.5.2 Sealant

Sealant shall be elastomeric conforming to ASTM C 920, Type S or M, Grade NS, Class 12.5, Use G, of type chemically compatible with setting blocks, preformed sealing tape and sealants used in manufacturing insulating glass. Color of sealant shall be as shown in Section 09000 BUILDING COLOR AND FINISH SCHEDULE.

2.5.3 Glazing Gaskets

Glazing gaskets shall be extruded with continuous integral locking projection designed to engage into metal glass holding members to provide a watertight seal during dynamic loading, building movements and thermal movements. Glazing gaskets for a single glazed opening shall be continuous one-piece units with factory-fabricated injection-molded corners free of flashing and burrs. Glazing gaskets shall be in lengths or units recommended by manufacturer to ensure against pull-back at corners. Glazing gasket profiles shall be as indicated on drawings.

2.5.3.1 Fixed Glazing Gaskets

Fixed glazing gaskets shall be closed-cell (sponge) smooth extruded compression gaskets of cured elastomeric virgin neoprene compounds conforming to ASTM C 509, Type 2, Option 1.

2.5.3.2 Wedge Glazing Gaskets

Wedge glazing gaskets shall be high-quality extrusions of cured elastomeric virgin neoprene compounds, ozone resistant, conforming to ASTM C 864, Option 1, Shore A durometer between 65 and 75.

2.5.3.3 Aluminum Framing Glazing Gaskets

Glazing gaskets for aluminum framing shall be permanent, elastic, non-shrinking, non-migrating, watertight and weathertight.

2.5.4 Setting and Edge Blocking

Neoprene setting blocks shall be dense extruded type conforming to ASTM D 395, Method B, Shore A durometer between 70 and 90. Edge blocking shall be Shore A durometer of 50 (+ or - 5). Silicone setting blocks shall be required when blocks are in contact with silicone sealant. Profiles, lengths and locations shall be as required and recommended in writing by glass manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

Openings and framing systems scheduled to receive glass shall be examined for compliance with approved shop drawings, GANA Glazing Manual and glass manufacturer's recommendations including size, squareness, offsets at corners, presence and function of weep system, face and edge clearance requirements and effective sealing between joints of glass-framing members. Detrimental materials shall be removed from glazing rabbet and glass surfaces and wiped dry with solvent. Glazing surfaces shall be dry and free of frost.

3.2 INSTALLATION

Glass and glazing work shall be performed in accordance with approved shop drawings, GANA Glazing Manual, glass manufacturer's instructions and warranty requirements. Glass shall be installed with factory labels intact and removed only when instructed. Wired glass and fire/safety rated glass shall be installed in accordance with NFPA 80. Edges and corners shall not be ground, nipped or cut after leaving factory. Springing, forcing or twisting of units during installation will not be permitted.

3.3 CLEANING

Upon completion of project, outside surfaces of glass shall be washed clean and the inside surfaces of glass shall be washed and polished in accordance with glass manufacturer's recommendations.

3.4 PROTECTION

Glass work shall be protected immediately after installation. Glazed openings shall be identified with suitable warning tapes, cloth or paper flags, attached with non-staining adhesives. Reflective glass shall be protected with a protective material to eliminate any contamination of the reflective coating. Protective material shall be placed far enough away from the coated glass to allow air to circulate to reduce heat buildup and moisture accumulation on the glass. Glass units which are broken, chipped, cracked, abraded, or otherwise damaged during construction activities shall

be removed and replaced with new units.

-- End of Section --

SECTION 12320A

CABINETS AND COUNTERTOPS
05/98
Amendement No. 0007

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

BHMA A156.9	(1994) Cabinet Hardware

KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)

KCMA A161.1	(1995) Performance & Construction Standards for Kitchen and Vanity Cabinets

[AM#0007]
ARCHITECTURAL WOODWORK INSTITUTE (AWI)

AWI Qual Stds	(1997) Architectural Woodwork Quality Standards

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA LD 3	(1995) High-Pressure Decorative Laminates

1.2 DESIGN

Cabinets shall be wood, factory-fabricated and finished in the manufacturer's standard sizes and finishes of the type, design, and configuration indicated. Cabinets shall be constructed as specified and shall meet the requirements of KCMA A161.1 [AM#0007] or AWI Qual Stds. Wall and base cabinet assemblies shall consist of individual units joined into continuous sections. Fastenings shall be accomplished to permit removal and replacement of individual units without affecting the remainder of the installation. Counters shall be provided with watertight sink rim when indicated. Drawers shall be removable and shall be equipped with position stops to avoid accidental complete withdrawals. Shelves shall be fixed or adjustable as indicated.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Installation; G

Drawings showing each type of cabinet and related item, and clearly indicating the complete plan, location, and elevations of the cabinets and accessories and pertinent details of construction, fabrication, and attachments.

SD-03 Product Data

Cabinets; G
Countertops and Backsplash; G

Manufacturer's printed data, catalog cuts, installation and cleaning instructions.

SD-06 Test Reports

Cabinets and Countertops; G

Test reports certifying that all cabinets comply with the requirements of KCMA A161.1 [AM#0007] or AWI Qual Stds. Tests shall be conducted by independent laboratories approved by KCMA [AM#0007] or AWI. KCMA [AM#0007] or AWI certification seals affixed to the cabinets will be accepted in lieu of certified test reports.

1.4 DELIVERY AND STORAGE

Cabinets and countertops shall be delivered to the jobsite wrapped in a protective covering. Cabinets shall be stored in accordance with manufacturer's recommendations in an adequately ventilated, dry location that is free of dust, water, or other contaminants and in a manner to permit access for inspection and handling. Cabinets shall be handled carefully to prevent damage to the surfaces. Damaged items that cannot be restored to like-new condition shall be replaced.

PART 2 PRODUCTS

2.1 CABINETS

Base and wall cabinets and coutertops for the Visitor's Center Guard Gatehouses and Truck Inspection Office Building, except for custom casework of the issue counter in the Visitor Center and work counters in Guard Gatehouses as noted in Section 06410, shall be as described in this section.

Wall and base cabinets shall be of the same construction and same outside appearance. Door design shall be solid flush face from vendors standard styles. Shelves shall be fixed or fully adjustable as indicated. Adjustable shelves shall be capable of adjusting on approximately 3 inch increments. Shelves shall be supported by self-locking clips or wood dowels. Dowels shall be approximately 5/16 inch in diameter by 1-9/16 inches long. Dowels shall be inserted into borings for the shelf adjustments. Shelves shall be minimum 1/2 inch thick plywood or minimum 1/2 inch thick 45 pound density particle board. Drawer fronts shall be 45 pound density particle board or hardwood plywood to match cabinet door construction.

2.1.1 Frame Type Cabinets

The cabinets shall be constructed with frame fronts and solid ends, or frame construction throughout. Frame members shall be 3/4 inch thick by 1-1/2 inch wide; kiln-dried hardwood, glued together, and shall be either mortised and tenoned, dovetailed or doweled, nailed, stapled or screwed. Top and bottom corners shall be braced with either hardwood blocks that are glued together with water resistant glue and nailed in place, or metal or plastic corner braces. Backs of wall cabinets shall be 1/8 inch thick plywood, tempered hardboard or 3/8 inch thick, 45 pound density particle board. Backs of base and tall cabinets shall be 3/8 inch thick hardwood or 3/8 inch thick, 45 pound density particle board. Bottoms of cabinets shall be minimum 3/8 inch thick plywood sound grade and shall be braced with wood members glued in place. Cabinet ends shall be 5/8 inch thick, 45 pound density particle board core.

2.2 COUNTERTOPS AND BACKSPLASH

2.2.1 High-Pressure Laminated Plastic Clad Countertops

Clad countertop and backsplash shall be constructed of 3/4 inch thick plywood or 3/4 inch thick, 45 pound density particle board core and shall be post formed cove type. Cove type shall be a single unit with self-edging and plastic laminate coved at the juncture of the countertop and backsplash. Edging and trim shall consist of plastic laminate cut and fitted to all exposed edges. End splashes constructed of 3/4 inch plywood or 3/4 inch thick, 45 pound density particle board core shall be supplied. Continuous sheets of longest lengths practicable shall be provided. Joints in surface sheeting shall be tight and flush and held to a practicable minimum. When the countertop and backsplash are two separate units, GP50 plastic laminate shall be used. When the countertop and backsplash are one unit, PF42 plastic laminate shall be used. Plastic laminate shall conform to the requirements of NEMA LD 3 and plastic laminate adhesive shall be contact type applied to both surfaces. For fully formed and cove type countertops, the post-forming plastic laminate shall not be bent to a radius smaller than the limit recommended by the plastic manufacturer.

2.3 Sink/Lavatory Rims

Sink/lavatory rims shall be of the corrosion resistant steel clamping type, sized to the sink , and a standard product of a manufacturer regularly producing this type of equipment.

2.4 FINISH

2.4.1 Cabinet Finish

Cabinets shall be provided with a factory-applied durable finish in accordance with KCMA A161.1 [AM#0007] or AWI Qual Stds requirements and of a type standard with the manufacturer. [AM#0002]All exposed exterior surfaces shall be plastic laminate finish. Plastic laminate shall conform to the requirements of NEMA LD 3.

2.4.2 Melamine Laminated Interior Cabinet Finish

Plywood, particle board or tempered hardboard cabinet backs shall be finished with a melamine laminate on the exposed side. Particle board shelves shall be covered on both sides with a laminated melamine finish. Melamine laminate shall conform to the requirements of NEMA LD 3 and laminate adhesive shall be contact type applied to both surfaces.

2.4.3 Backer Sheets

Backer Sheets of high pressure plastic laminate, shall conform to NEMA LD 3, Grade BK20 and shall be applied to the underside of all core material.

2.5 HARDWARE

Hardware shall conform to BHMA A156.9, shall be suitable for kitchen cabinet use, and shall include all miscellaneous hardware for a complete installation. Door hinges shall be self-closing type. Drawer runners shall have nylon rollers standard with the manufacturer. Hardware and fastenings for doors and drawers with particle board cores shall be of the through-bolt type.

2.6 COLOR, TEXTURE, AND PATTERN

Design, color, and finish shall be selected from manufacturer's standard.

PART 3 EXECUTION

3.1 INSTALLATION

Cabinets shall be installed level, plumb, and true to line, and shall be attached to the walls or floors with suitable devices to securely anchor each unit. Countertops, accessories, and hardware shall be installed as indicated on the drawings. Installation shall be in accordance with the manufacturer's approved printed instructions. The inner edge of sink cut-outs in laminated plastic tops shall be painted with a coat of semigloss enamel paint and sink flanges shall be set in a bed of sealant. Closer and filler strips and finish moldings shall be provided as required. Prior to final acceptance, doors shall be aligned, and hardware shall be adjusted.

3.2 CLEANING

Cabinet and countertop surfaces shall be cleaned in accordance with manufacturer's instructions.

-- End of Section --

SECTION 16410A

AUTOMATIC TRANSFER SWITCH [AM#0007]
07/01
Amendment No. 0007

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 117	(1997) Operating Salt Spray (Fog) Apparatus

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE C62.41	(1991; R 1995) Surge Voltages in Low-Voltage AC Power Circuits

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 1	(1993) Industrial Control and Systems
NEMA ICS 2	(1993) Industrial Controls and Systems Controllers, Contactors, and Overload Relays Rated Not More Than 2,000 Volts AC or 750 Volts DC
NEMA ICS 4	(1997) Industrial Control and Systems Terminal Blocks
NEMA ICS 6	(1993) Industrial Control and Systems, Enclosures
NEMA ICS 10	(1999) Industrial Control and Systems: AC Transfer Switch Equipment - Part 2: Static AC Transfer Equipment

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2002) National Electrical Code
NFPA 110	(1999) Emergency and Standby Power Systems

UNDERWRITERS LABORATORIES (UL)

UL 1008	(1996; Rev thru Feb 1999) Transfer Switch Equipment
UL 1066	(1997) Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Switch; G

Schematic, external connection, one-line schematic and wiring diagram of each ATS assembly. Interface equipment connection diagram showing wiring between ATS and related equipment. Device, nameplate, and item numbers shown in list of equipment and material shall appear on drawings wherever that item appears. Diagrams shall show interlocking provisions and cautionary notes, if any. Operating instructions shall be shown either on one-line diagram or separately. Unless otherwise approved, one-line and elementary or schematic diagrams shall appear on same drawing.

Equipment; G
Installation; G

Dimensioned plans, sections and elevations showing minimum clearances, weights, and conduit entry provisions for each ATS.

SD-03 Product Data

Material; G
Equipment; G

List of proposed equipment and material, containing a description of each separate item.

SD-06 Test Reports

Testing; G

A description of proposed field test procedures, including proposed date and steps describing each test, its duration and expected results, not less than 2 weeks prior to test date.

Certified factory and field test reports, within 14 days following completion of tests. Reports shall be certified and dated and shall demonstrate that tests were successfully completed prior to shipment of equipment.

SD-07 Certificates

Equipment; G
Material; G

Certificates of compliance showing evidence of UL listing and conformance with applicable NEMA standards. Such certificates are not required if manufacturer's published data, submitted and approved, reflect UL listing or conformance with applicable NEMA

standards.

SD-10 Operation and Maintenance Data

Automatic Transfer Switch Instructions

Three copies of operating manual outlining step-by-step procedures for system startup, operation, and shutdown. Manual shall include manufacturer's name, model number, service manual, parts list, and brief description of equipment and basic operating features. Manufacturer's spare parts data shall be included with supply source and current cost of recommended spare parts. Three copies of maintenance manual listing routine maintenance, possible breakdowns, repairs, and troubleshooting guide. Manual shall include simplified wiring and control diagrams for system as installed.

1.3 GENERAL REQUIREMENTS

1.3.1 Standard Product

Material and equipment shall be standard products of a manufacturer regularly engaged in manufacturing the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. The experience use shall include applications in similar circumstances and of same design and rating as specified ATS. Equipment shall be capable of being serviced by a manufacturer-authorized and trained organization that is, in the Contracting Officer's opinion, reasonably convenient to the site.

1.3.2 Nameplate

Nameplate showing manufacturer's name and equipment ratings shall be made of corrosion-resistant material with not less than 1/8 inch tall characters. Nameplate shall be mounted to front of enclosure and shall comply with nameplate requirements of NEMA ICS 2.

PART 2 PRODUCTS

2.1 AUTOMATIC TRANSFER SWITCH (ATS)

ATS shall be electrically operated and mechanically held in both operating positions. ATS shall be suitable for use in emergency systems described in NFPA 70. ATS shall be UL listed. ATS shall be manufactured and tested in accordance with applicable requirements of IEEE C62.41, NEMA ICS 1, NEMA ICS 10, and UL 1008. ATS shall conform to NFPA 110. To facilitate maintenance, manufacturer's instruction manual shall provide typical maximum contact voltage drop readings under specified conditions for use during periodic maintenance. Manufacturer shall provide instructions for determination of contact integrity. ATS shall be rated for continuous duty at specified continuous current rating. [AM#0007]ATS shall have following characteristics:

a. Voltage: 240 volts ac.

b. Number of Phases: One.

c. Number of Wires: Two.

d. Frequency: 60 Hz.

e. Poles: Two switched and solid neutral .

f. ATS WCR: Rated to withstand short-circuit current of 22K amperes, RMS symmetrical.

g. Main Contacts: Contacts shall have silver alloy composition.

2.1.1 Override Time Delay

Time delay to override monitored source deviation shall be adjustable from 0.5 to 6 seconds and factory set at 1 second. ATS shall monitor phase conductors to detect and respond to sustained voltage drop of 20 percent of nominal between any two normal source conductors and initiate transfer action to alternate source and start engine driven generator after set time period. Pickup voltage shall be adjustable from 85 to 100 percent of nominal and factory set at 90 percent. Dropout voltage shall be adjustable from 70 to 90 percent of pickup value and factory set at 85 percent of nominal.

2.1.2 Transfer Time Delay

Time delay before transfer to alternate power source shall be adjustable from 0 to 5 minutes and factory set at 0 minutes. ATS shall monitor frequency and voltage of alternate power source and transfer when frequency and voltage are stabilized. Pickup voltage shall be adjustable from 85 to 95 percent of nominal and factory set at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal and factory set at 90 percent.

2.1.3 Return Time Delay

Time delay before return transfer to normal power source shall be adjustable from 0 to 30 minutes and factory set at 30 minutes. Time delay shall be automatically defeated upon loss or sustained undervoltage of alternate power source, provided that normal supply has been restored.

2.1.4 Engine Shutdown Time Delay

Time delay shall be adjustable from 0 to 30 minutes and shall be factory set at 10 minutes.

2.1.5 Exerciser

Provide a generator exerciser timer. Run times shall be user programmable. The generator exerciser shall be selectable between load transfer and enginer run only, and shall have a fail-safe feature that will retransfer the ATS to normal during the exercise period.

2.1.6 Auxiliary Contacts

Two normally open and two normally closed auxiliary contacts rated at 10 amperes at 250 volts ac shall operate when ATS is connected to normal power source, and two normally open and two normally closed contacts shall operate when ATS is connected to alternate source.

2.1.7 Supplemental Features

ATS shall be furnished with the following:

a. Engine start contact.

b. Alternate source monitor.

c. Test switch to simulate normal power outage.

d. Voltage sensing. Pickup voltage adjustable from 85 to 100 percent of nominal; dropout adjustable from 70 to 90 percent of pickup.

e. Time delay bypass switch to override return time delay to normal.

f. Manual return-to-normal switch.

g. Means shall be provided in the ATS to insure that motor/transformer load inrush currents do not exceed normal starting currents. This shall be accomplished with either in-phase monitoring, time-delay transition, or load voltage decay sensing methods. If manufacturer supplies an in-phase monitoring system, the manufacturer shall indicate under what conditions a transfer cannot be accomplished. If the manufacturer supplies a time-delay transition system, the manufacturer shall supply recommendations for establishing time delay. If load voltage decay sensing is supplied, the load voltage setting shall be user programmable.

2.1.8 Operator

Manual operator conforming to UL 1008 shall be provided, and shall incorporate features to prevent operation by unauthorized personnel. ATS shall be designed for safe manual operation under full load conditions. If manual operation is accomplished by opening the door, then a dead-front shall be supplied for operator safety.

2.1.9 Override Switch

Override switch shall bypass automatic transfer controls so ATS will transfer and remain connected to alternate power source, regardless of condition of normal source. If alternate source fails and normal source is available, ATS shall automatically retransfer to normal source.

2.1.10 Green Indicating Light

A green indicating light shall supervise/provide normal power source switch position indication and shall have a nameplate engraved NORMAL.

2.1.11 Red Indicating Light

A red indicating light shall supervise/provide alternate power source switch position indication and shall have a nameplate engraved ALTERNATE.

[AM#0007]2.2 ENCLOSURE

ATS and accessories shall be installed in wall-mounted, ventilated NEMA ICS 6, Type 3R, smooth sheet metal enclosure constructed in accordance with applicable requirements of UL 1066 and/or UL 1008. Intake vent shall be screened and filtered. Door shall have suitable locking handle latch and

gasketed jamb. Thermostatically controlled heater shall be provided within enclosure to prevent condensation over temperature range stipulated in paragraph SERVICE CONDITIONS. Metal gauge shall be not less than No. 14. Enclosure shall be equipped with at least two approved grounding lugs for grounding enclosure to facility ground system using No. 2 AWG copper conductors. Factory wiring within enclosure and field wiring terminating within enclosure shall comply with NFPA 70. If wiring is not color coded, wire shall be permanently tagged or marked near terminal at each end with wire number shown on approved detail drawing. Terminal block shall conform to NEMA ICS 4. Terminals shall be arranged for entrance of external conductors from top and bottom of enclosure as shown. Main switch terminals, including neutral terminal if used, shall be pressure type suitable for termination of external copper conductors shown.

2.2.1 Construction

Enclosure shall be constructed for ease of removal and replacement of ATS components and control devices from front without disconnection of external power conductors or removal or disassembly of major components. Enclosure of ATS with BP/IS shall be constructed to protect personnel from energized BP/IS components during ATS maintenance.

2.2.2 Cleaning and Painting

Both the inside and outside surfaces of an enclosure, including means for fastening, shall be protected against corrosion by enameling, galvanizing, plating, powder coating, or other equivalent means. Protection is not required for metal parts that are inherently resistant to corrosion, bearings, sliding surfaces of hinges, or other parts where such protection is impractical. Finish shall be manufacturer's standard material, process, and color and shall be free from runs, sags, peeling, or other defects. An enclosure marked Type 1, 3R, 4 or 12 shall be acceptable if there is no visible rust at the conclusion of a salt spray (fog) test using the test method in ASTM B 117, employing a 5 percent by weight, salt solution for 24 hours. Type 4X enclosures are acceptable following performance of the above test with an exposure time of 200 hours.

2.3 TESTING

2.3.1 Factory Testing

A prototype of specified ATS shall be factory tested in accordance with UL 1008. In addition, factory tests shall be performed on each ATS as follows:

a. Insulation resistance test to ensure integrity and continuity of entire system.

b. Main switch contact resistance test.

c. Visual inspection to verify that each ATS is as specified.

d. Mechanical test to verify that ATS sections are free of mechanical hindrances.

e. Electrical tests to verify complete system electrical operation and to set up time delays and voltage sensing settings.

2.3.2 Factory Test Reports

Manufacturer shall provide three certified copies of factory test reports.

2.4 FACTORY TESTING (MEDICAL FACILITIES)

2.4.1 Viewing Ports

Viewing ports to inspect the contacts without requiring disassembly shall be provided.

2.4.2 Operating Handles

The operating handles shall be externally operated, and designed and constructed not to stop in an intermediate or neutral position during operation, but shall permit load by-pass and transfer switch isolation in no more than two manual operations which can be performed by one person in 5 seconds or less. The transfer speed will be independent of the operational speed of the switch handle or handles.

PART 3 EXECUTION

3.1 INSTALLATION

ATS shall be installed as shown and in accordance with approved manufacturer's instructions.

3.2 INSTRUCTIONS

Manufacturer's approved operating instructions shall be permanently secured to cabinet where operator can see them. One-line and elementary or schematic diagram shall be permanently secured to inside of front enclosure door.

3.3 SITE TESTING

Following completion of ATS installation and after making proper adjustments and settings, site tests shall be performed in accordance with manufacturer's written instructions to demonstrate that each ATS functions satisfactorily and as specified. Contractor shall advise Contracting Officer not less than 5 working days prior to scheduled date for site testing, and shall provide certified field test reports within 2 calendar weeks following successful completion of site tests. Test reports shall describe adjustments and settings made and site tests performed. Minimum operational tests shall include the following:

a. Insulation resistance shall be tested, both phase-to-phase and phase-to-ground.

b. Power failure of normal source shall be simulated by opening upstream protective device. This test shall be performed a minimum of five times.

c. Power failure of emergency source with normal source available shall be simulated by opening upstream protective device for emergency source. This test shall be performed a minimum of five times.

d. Low phase-to-ground voltage shall be simulated for each phase of normal source.

e. Operation and settings shall be verified for specified ATS features, such as override time delay, transfer time delay, return time delay, engine shutdown time delay, exerciser, auxiliary contacts, and supplemental features.

f. Manual and automatic ATS and BP/IS functions shall be verified.

-- End of Section --